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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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J. Nelson Wright

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EXAMINER

WEATHERBY, ELLSWORTH

ART UNIT

PAPER NUMBER

3768

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/750,165	Applicant(s) WRIGHT ET AL.	
	Examiner ELLSWORTH WEATHERBY	Art Unit 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 and 32-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 32-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1-15 and 32-36 are objected to because of the following informalities:
Regarding claims 1, 3-6, 8-11, 13-15 and 32-36, it is not clear what is being claimed by the term "elements". The specification, defines elements as exciting coils. However, as claimed the "elements" may refer to either a frequency or a coil. For the purposes of examination "elements" refers to frequency. Further regarding claim 6, there should be an "a" between *using* and *ring*. Further regarding claim 36 "said first set of frequencies" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 4, 9 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant fails to clearly describe what is meant by "element have frequencies that are uniformly spaced apart". Accordingly and without a proper definition, the Examiner is forced to give the broadest reasonable interpretation to the claimed, "elements that have frequencies that are uniformly spaced

apart". Therefore, as interpreted by the Examiner, "elements that have frequencies that are uniformly spaced apart" refers to frequencies within a frequency range which do not overlap.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3-5, 35 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Paradiso et al. (USPN 6,404,340).

6. Paradiso et al. (hereinafter Paradiso) teaches locating a marker associated with a patient (col. 2, ll. 26-47), the marker having a marker resonant frequency (col. 2, ll. 47-50), the method comprising, applying an excitation at one of a set of frequencies to the marker using an excitation source (col. 4, ll. 51-53); receiving a plurality of inputs indicative of a sensed magnetic flux induced by the marker in response to the excitation (col. 3, ll. 53-57; col. 5, ll. 3-5); repeating the exciting and receiving steps across a range of frequencies (col. 4, ll. 51-58); identifying the marker resonant frequency based upon the multiple sets of plurality of inputs (col. 5, ll. 3-5); Paradiso goes on, teaching analyzing the resonance set of plurality of inputs indicative of a sensed magnetic flux to induced by the marker in response to the excitation at the marker resonant frequency and determining the location of the marker by analyzing the resonance set of plurality of

inputs (col. 2, l. 6-28; col. 4, l. 47- col. 5, l. 28). Paradiso also teaches determining the location of each marker's unique resonance frequency by sweeping through a range of frequencies (col. 5, ll. 3-5)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Blair (Pub. No. 2004/0250819).

10. Paradiso teaches all the limitations of the claimed invention except for expressly teaching initiating multiple excitations at the marker resonant frequency and averaging the resonance set of plurality of inputs over the multiple excitations.

11. In the same field of endeavor, Blair et al. '819 (hereinafter Blair) teaches initiating multiple excitations and averaging the resonance set of plurality of inputs over the multiple excitations [0073].

12. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Blair. The motivation to modify Paradiso in view of Blair would have been to increase the signal to noise ration, as taught by Blair [0073].

13. Claims 6, 8-11, 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Eckstein et al. (Pub. No. 2001/0040507).

14. Paradiso teaches locating a marker associated with a patient (col. 2, ll. 26-47), the marker having a marker resonant frequency (col. 2, ll. 47-50), the method comprising, applying an excitation at one of a set of frequencies to the marker using an excitation source (col. 4, ll. 51-53); receiving a plurality of inputs indicative of a sensed magnetic flux induced by the marker in response to the excitation (col. 3, ll. 53-57; col. 5, ll. 3-5); repeating the exciting and receiving steps across a range of frequencies (col. 4, ll. 51-58); identifying the marker resonant frequency based upon the multiple sets of plurality of inputs (col. 5, ll. 3-5); Paradiso goes on, teaching analyzing the resonance set of plurality of inputs indicative of a sensed magnetic flux to induced by the marker in

response to the excitation at the marker resonant frequency and determining the location of the marker by analyzing the resonance set of plurality of inputs (col. 2, l. 6-28; col. 4, l. 47- col. 5, l. 28). Paradiso also teaches determining the location of each marker's unique resonance frequency by sweeping through a range of frequencies (col. 5, ll. 3-5).

15. Paradiso does not expressly teach using a ring time control processor.

16. In a similar field of endeavor, Eckstein et al. '507 (hereinafter Eckstein) teaches a device for detecting the presence of an article using electromagnetic signals (abstract). Eckstein goes on, teaching characterizing tags using a ring-time control processor [0039].

17. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Eckstein. The motivation to modify Paradiso in view of Eckstein would have been to accurately characterize the markers using a pre-established marker data bank, as taught by as taught by Eckstein.

18. Claims 7, 12, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Eckstein et al. (Pub. No.: 2001/0040507) as applied to claims 6, 11 and 16 above, and further in view of Blair (Pub. No. 2004/0250819).

19. Paradiso in view of Eckstein teaches all the limitations of the claimed invention except for expressly teaching initiating multiple excitations at the marker resonant

frequency and averaging the resonance set of plurality of inputs over the multiple excitations.

20. In the same field of endeavor, Blair et al. '819 (hereinafter Blair) teaches initiating multiple excitations and averaging the resonance set of plurality of inputs over the multiple excitations [0073].

21. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Eckstein with Blair. The motivation to modify Paradiso in view of Eckstein with Blair would have been to increase the signal to noise ration, as taught by Blair [0073].

22. Claims 19-20 and 23-24, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Bladen et al. (Pub. No.: 2003/0163037).

23. Paradiso teaches a system for locating a marker associated with a patient comprising: an excitation source emitting an exciting waveform during an excitation interval, the exciting waveform causing the marker to resonate (col. 4, ll. 51-53); a sensing array including a plurality of sensing coils, the sensing coils collectively outputting a plurality of inputs (col. 3, ll. 53-57; col. 5, ll. 3-5); a receiver for analyzing the plurality of inputs to remove noise from the plurality of inputs (col. 4, l. 47- col. 5, l. 28).

24. Paradiso does not expressly teach window filtering the plurality of inputs.

25. In a similar field of endeavor, Bladen et al. (hereinafter Bladen) teaches locating the position of a sensor using magnetic field (abstract). Bladen goes on, teaching windowing the sampled signal using a Blackman window and a matched filter [0042].

26. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Bladen. The motivation to modify Paradiso in view of Bladen would have been to improve the signal to noise ratio.

27. Claims 21-22, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Bladen et al. (Pub. No.: 2003/0163037) as applied to claims 20 and 23 above, and further in view of Schneider (USPN 6,073,043).

28. Paradiso in view of Bladen teaches all the limitations of the claimed invention except for expressly teaching that the receiver is a coherent receiver. Paradiso in view of Bladen also does not expressly teach that the receiver identifies and corrects a phase shift from the plurality of inputs.

29. In a similar field of endeavor, Schneider teaches locating a remote object using electromagnetic generators and receivers (abstract). Schneider goes on, teaching using a coherent receiver that also identifies and corrects a phase shift from a plurality of inputs (col. 25, l. 58- col. 26, l. 5).

30. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Bladen with Schneider. The motivation to modify

Paradiso in view of Bladen with Schneider would have been to use well known signal extraction means to acquire data.

31. Claims 32-34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Flaxl (USPN 5,491,715).

32. Paradiso teaches locating a marker associated with a patient (col. 2, ll. 26-47), the marker having a marker resonant frequency (col. 2, ll. 47-50), the method comprising, applying an excitation at one of a set of frequencies to the marker using an excitation source (col. 4, ll. 51-53); receiving a plurality of inputs indicative of a sensed magnetic flux induced by the marker in response to the excitation (col. 3, ll. 53-57; col. 5, ll. 3-5); repeating the exciting and receiving steps across a range of frequencies (col. 4, ll. 51-58); identifying the marker resonant frequency based upon the multiple sets of plurality of inputs (col. 5, ll. 3-5); Paradiso goes on, teaching analyzing the resonance set of plurality of inputs indicative of a sensed magnetic flux to induced by the marker in response to the excitation at the marker resonant frequency and determining the location of the marker by analyzing the resonance set of plurality of inputs (col. 2, l. 6-28; col. 4, l. 47- col. 5, l. 28). Paradiso also teaches determining the location of each marker's unique resonance frequency by sweeping through a range of frequencies (col. 5, ll. 3-5).

33. Paradiso does not expressly teach interpolating a frequency response based on received information and identifying the marker resonant frequency based on the interpolation.

34. Flaxl teaches an automatic antenna tuning method and circuit comprising a phase comparator that receives a powering signal and a phase correlation signal and correspondingly adjusts the resonant frequency of a resonant circuit based on the known phase relationship (abstract).

35. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Flaxl. The motivation to modify Paradiso in view of Flaxl would have been to optimize tuning, as taught by Flaxl.

Response to Arguments

36. Applicant's arguments with respect to claim 1/30/2008 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELLSWORTH WEATHERBY whose telephone number is (571) 272-2248. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/
Primary Examiner, Art Unit 3737

EW